Pulmonary Atelectasis Due to Voluntary Suppression of Cough*

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Massive pulmonary atelectasis is encountered in a variety of circumstances that predispose to, or produce bronchial obstruction. The obstructing agents may be tumors, intrinsic or extrinsic, foreign bodies, or abnormal secretions retained in the airways. Precipitating factors may be inhibition of the cough mechanism by drug or metabolic depression, reflex inhibition due to pain, or ineffective motion due to interrupted integrity of the chest wall, to name but a few.

An additional factor, not as a rule noted, may be voluntary suppression of cough, such as was observed in the five cases to be presented here. Emotional motivation toward suppression of cough was present in at least four of the five; repeated bronchoscopic examination and explorations ruled out intrinsic disease of the airways, and four of the five patients had recurrences of the atelectatic phenomenon until they ceased to suppress their cough mechanism.

The importance of cough, unique in its capacity to accelerate expiratory air flow is indicated by the studies of Ross et al. and the particular importance of cough in preventing atelectasis has been demonstrated by Dayman and Manning.

Case 1 presented at the age of 23 with massive atelectasis of the right lower lobe. The x-ray film (Fig. 1a) is classical. Bronchoscopy disclosed thick, airless mucoid secretions completely filling the lower lobe bronchus on the right. This was aspirated and partial re-expansion was noted immediately (Fig. 1b), followed shortly by complete re-expansion. However, the condition recurred several times during ensuing months until it was discovered that this person considered a cough as a social handicap and therefore had learned to suppress it completely; this in spite of an almost continuous allergic mucoid secretion. The problem of recurring atelectasis was solved when it was impressed on the patient that coughing was less of a social handicap than recurring atelectasis.

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Case 2 was a girl of eight years. She was asthmatic and had learned to suppress her cough reflex in order to avoid annoying her parents. On October 28, 1953 (Fig. 2) she exhibited atelectasis of the right lung. This responded to bronchoscopy, but was followed immediately by atelectasis of the right lower lobe. A second bronchoscopy November 1, 1953 together with measures to liquefy secretions, failed to secure complete re-expansion and on November 22, atelectasis of the right upper lobe was found. The voluntary suppression of cough was then noted and measures were taken to encourage cough and expectoration. During the next few months, the condition recurred several times, but finally responded to conservative measures as well as permissive encouragement on the part of the parents for her to cough freely.

FIGURE 2: Atelectasis of right lung.

FIGURE 3: Pulmonary atelectasis of left upper lobe. In the lateral view, the interlobar fissure can be seen to be displaced upward and forward.
Case 3 was a girl 16 years of age, the younger of two sisters. The older one was asthmatic with a chronic cough that was a source of irritation to her family. The younger sister proudly announced that she did not need to cough even when she had a cold. When examined on January 17, 1958 she was dyspneic and had the classical physical and x-ray film findings of atelectasis of the upper lobe of the left lung (Fig. 3). Bronchoscopy disclosed this lobar orifice to be completely obstructed by in-spissated mucopus with a putty-like consistency. This was removed with a foreign body forceps, whereupon there was almost complete re-expansion in the next hour. As far as is known, she never had a recurrence.

Case 4 was a strikingly beautiful young woman who had a mildly suppurating bronchectasis involving the left lower lobe. In social and business contacts, she had learned to suppress her cough most effectively. She suffered repeated episodes of right chest pain and low grade fever, associated with an atelectatic shadow in the middle lobe area of the right lung. Subsequent experience demonstrated that the episodes of chest pain and fever could be avoided or made less severe by free and uninhibited coughing in order to clear out her bronchial tree.

FIGURE 4: Massive atelectasis of left lung.

Case 5. This 66 year-old woman with no previous respiratory disease presented with massive atelectasis of the left lung (Fig. 4), marked by fever and dyspnea. There was no cough. She had been in a depressed state and was wont to sit quietly for hours at a time. Bronchoscopy disclosed the left main bronchus filled with tenacious mucopus which recurred from the secondary orifices until it had been aspirated several times. The mucosa was red, but showed no other evidence of disease. The atelectasis did not re-expand immediately after bronchoscopy, but did so after a few days, when she was forcibly ambulated. Two weeks later, the identical picture recurred and responded in the same way. She was then put on dexamethasone, encouraged to cough and had no more episodes of atelectasis.

Discussion

Most people find cough an annoyance, either to have or to hear. It is more than a euphemism to classify it as a protective mechanism, although it may fail to serve much of a purpose, particularly in conditions of acute inflammation. That its suppression, however, may lead to trouble, and that such suppression may voluntary, is suggested by this group of patients.

REFERENCES